

# **High Conductance Fast Switching Diode**

### 1N4148WT, 1N4448WT, 1N914BWT

#### **Features**

- Fast Switching Diode ( $T_{RR} < 4.0 \text{ ns}$ )
- Flat Lead, Surface Mount Device Under 0.70 mm Height
- Extremely Small Outline Plastic Package SOD523F
- Moisture Level Sensitivity 1
- Pb-Free Version and RoHS Compliant
- Matte Tin (Sn) Lead Finish
- Green Mold Compound

#### **Table 1. ABSOLUTE MAXIMUM RATINGS**

T<sub>A</sub> = 25°C unless otherwise noted

Symbol	Parameter	Value	Units	
V <sub>RSM</sub>	Non-Repetitive Peak Reverse Voltage	75	V	
V <sub>RRM</sub>	Repetitive Peak Reverse Voltage	75	V	
I <sub>FRM</sub>	Repetitive Peak Forward Current	300	mA	
T <sub>J</sub>	Operating Junction Temperature Range	-55 to +150	°C	
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C	

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

- 1. These ratings are based on a maximum junction temperature of 150°C.
- 2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

#### **Table 2. THERMAL CHARACTERISTICS**

Symbol	Parameter	Value	Units
P <sub>D</sub>	Power Dissipation (T <sub>C</sub> = 25°C)	200	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	500	°C/W

3. Device mounted on FR-4 PCB minimum land pad.

## 1N4148WT. 1N4448WT.

## 2

SCALE 4:1

SOD-523 CASE 502

#### **ELECTRICAL SYMBOL**



#### MARKING DIAGRAM



XX = Specific Device CodeM Date Code

#### **DEVICE MARKING CODE**

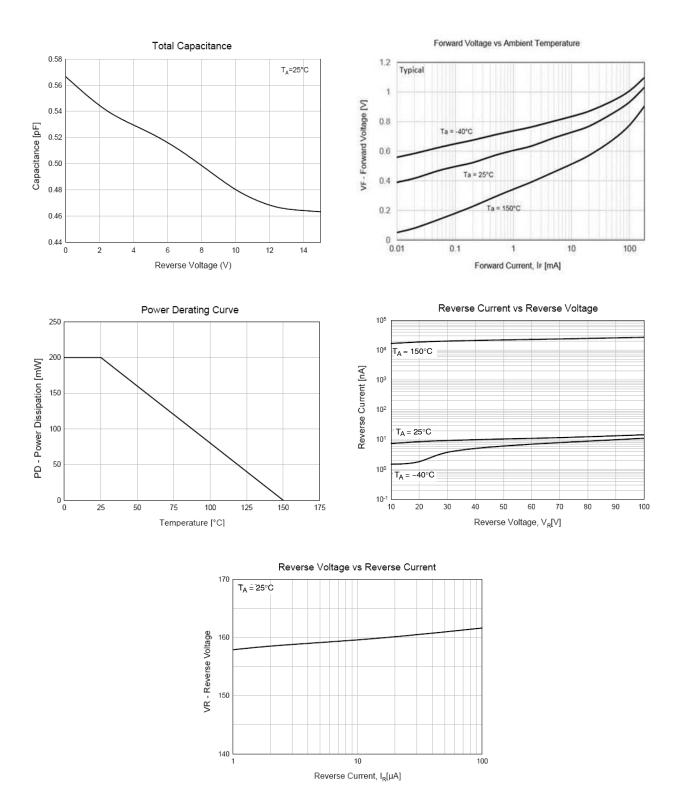
Device Type	Device Marking		
1N4148WT	E1		
1N4448WT	E2		
1N914BWT	E3		

Table 3. ELECTRICAL SPECIFICATIONS T<sub>A</sub> = 25°C unless otherwise noted

Symbol	Parameter		Test Conditions	Min	Тур	Max	Units
BV <sub>R</sub>	Breakdown Voltage		I <sub>R</sub> = 100 μA I <sub>R</sub> = 5 μA	100 75			V
I <sub>R</sub>	Reverse Current		V <sub>R</sub> = 20 V V <sub>R</sub> = 75 V			25 5	nA μA
V <sub>F</sub>	Forward Voltage	1N4448WT / 914BWT 1N4148WT 1N4448WT / 914BWT	I <sub>F</sub> = 10 mA	0.62		0.72 1 1	V
C <sub>O</sub>	Diode Capacitance		V <sub>R</sub> = 0, f = 1 MHz			4	pF
T <sub>RR</sub>	Reverse Recovery Time		$I_F$ = 10 mA, $V_R$ = 6.0 V $I_{RR}$ = 1 mA, $R_L$ = 100 $\Omega$			4	nS

### 1N4148WT, 1N4448WT, 1N914BWT

#### **TYPICAL PERFORMANCE CHARACTERISTICS**



**Figure 1. Typical Performance Characteristics** 





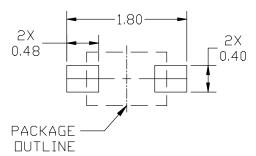
#### SOD-523 1.20x0.80x0.60 CASE 502 ISSUE F

**DATE 08 FEB 2024** 

#### NOTES:

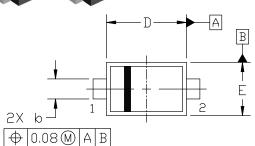
- 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
- 2. CONTROLLING DIMENSION: MILLIMETERS.
- 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH, MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
- 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			
DIM	MIN.	N□M.	MAX.	
А	0.50	0.60	0.70	
b	0.25	0.30	0.35	
C	0.07	0.14	0.20	
D	1.10	1.20	1.30	
E	0.70	0.80	0.90	
Н	1.50	1.60	1.70	
L	0.30 REF			
L2	0.15	0.20	0.25	

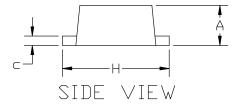


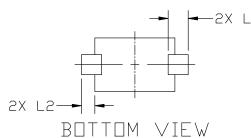
## RECOMMENDED MOUNTING FOOTPRINT

\*For additional information on our Pb-Free strategy and soldering details, please download the DN Semiconductor Soldering and Mounting Techniques Reference manual SDLDERRM/D.

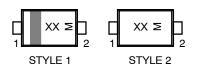








### GENERIC MARKING DIAGRAM\*



XX = Specific Device Code M Date Code

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

STYLE 1: STYLE 2: PIN 1. CATHODE (POLARITY BAND)

YLE 2: NO POLARITY

DOCUMENT NUMBER:

98AON11524D

Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.

DESCRIPTION:

SOD-523 1.20x0.80x0.60

PAGE 1 OF 1

onsemi and ONSeMi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

onsemi, Onsemi, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at <a href="www.onsemi.com/site/pdf/Patent-Marking.pdf">www.onsemi.com/site/pdf/Patent-Marking.pdf</a>. Onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using onsemi products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by onsemi. "Typical" parameters which may be provided in onsemi data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. onsemi does not convey any license under any of its intellectual property rights nor the rights of others. onsemi products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA class 3 medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase

#### ADDITIONAL INFORMATION

**TECHNICAL PUBLICATIONS:** 

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$ 

onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at

www.onsemi.com/support/sales